PREDICTION OF CHRONIC ALCOHOLISM FROM THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

by

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INTRODUCTION

Background

There are some 65,000,000 people in the United States who partake of alcoholic beverages. Of these 65,000,000 persons, some 4,000,000 are classified as alcoholics (Jellinek and Keller, 16). This class can be broken down further into two groups--the chronic and the deteriorated alcoholic. A differentiation will be made later in this paper; however, this study is primarily interested in the chronic alcoholic. Regarding this group, Haggard, (8) has stated:

> The true addicts have profound, but not psychotic maladjustment; they are the most dramatic and the most pitiful of the excessive drinkers but fortunately, at present, a small group. They occupy a prominent position in popular and medical views, because they express to the highest degree the general conception of the true alcoholic--the men to whom alcohol is a complete solution to the problem of adjustment. They do not respond well to treatment, but are not entirely hopeless, for if they can be shown and convinced that their conflicts can be relieved by means other than alcohol they may develop more acceptable behavior.

Perhaps Haggard's pessimistic note regarding treatment needs some modification. If a means could be found to predict and/or diagnose chronic alcoholism in its early stages, therapy would probably be more effective.

The alcoholic problem has been with us since the beginning of man. One can find throughout the Bible references to the alcoholic and the use of alcoholic beverages. The drunk has been portrayed in many of the great plays and novels of our time. A few of the great leaders, past and present, have been alcoholics. Alcoholism

is no respector of race, class or creed.

As soon as man began to use alcohol, be began to abuse the use of this beverage. Just as man overeats and oversleeps, he has also learned to overdrink.

The first attempt to cure man of this over-indulgence was along moralistic lines. The alcoholic was considered a "drunk" and a "soak." He was thought of as weak willed and the only means of rehabilitation was to shame him and to condemn him as a sinner. When this approach failed, he was thrown into jail or into a mental institution to "sober up." If he was placed in a mental institution, many times he simply "rotted away" as a hopeless drunk.

About the turn of the 20th century it was realized that this method failed to rehabilitate the alcoholic. Some persons in the 1930's realized the potentialities that were being lost in these individuals and there was an active attempt to rehabilitate them medically and psychologically. Many studies have been done recently based upon physiological, pharmacological, and psychological hypotheses. Of these approaches, one of the most profitable has been the psychological. Modern medicine has come to the realization that the alcoholic is a sick individual and that alcoholism itself is a disease.

According to the National Committee for Education on Alcoholism (Mann, 18), there are three simple concepts which we must accept when working with the alcoholic: a) alcoholism is a disease and the alcoholic is a sick person; b) the alcoholic can be helped and is worth helping; c) treatment and prevention of

alcoholism is a public responsibility.

Problem in the United States

The extent to which this problem exists in the United States is revealed by the statistics which Jellinek and Keller (16) have reported. There were some 3,800,000 alcoholics in the U. S. in 1940. This means that there were 3,028 alcoholics per 100,000 population. There was a 31 per cent increase in the eight years following 1940, so that the latest statistics quote a rate of 3,950 alcoholics per 100,000 population. This is only a small per cent of the total 65,000,000 drinking population. However, if one considers the potentialities of these individuals, the impact of this problem upon our industries and the local and national economy in terms of buying power and what it will cost communities to treat these alcoholics is fantastically great.

In industry an estimated 1,300,000 to 2,000,000 employees are considered to be alcoholics (Page, et al., 24). In terms of dollars and cents, Page has estimated the loss to industry because of alcoholism conservatively at one-half billion dollars a year. Henderson (14) and O'Brien (22) have estimated the loss to be over one billion dollars a year. One cannot, however, assess the loss only in terms of management's dollars and cents. The worker himself loses from 22 to 25 working days a year because of alcohol. This means that some 36,000,000 work days are lost per year. The alcoholic's accident rate is twice that of the normal worker. His life expectancy is reduced by 12 years, thereby decreasing his productivity to the company.

These figures seem large, yet there is a hidden cost to industry. As Henderson (14) stated:

> The alcoholic in business and industry differs from the rest of the alcoholic population primarily in the extent of the damage acquired and in terms of his progress in this slowly developing condition.

Henderson refers to "the slowly developing condition." According to Bacon (1) it takes from two to ten years to become a full fledged alcoholic. If industry accepts a man after graduation from high school or college and trains him, this man (assuming he begins his drinking at the time of graduation or slightly before) will become a full fledged alcoholic at the time he should be of most value to the industry.

Another aspect of the alcoholic problem in industry which must be considered is its effect upon supervisory personnel. As Page and Halkins (23) stated, "One moderate problem drinker in a key position is worse than ten advanced alcoholics who are common laborers." Not only is the work of the supervisor affected, but also those who are working under him. Furthermore, prestige and good will within the community suffer, especially if the alcoholic holds a responsible position.

Further statistics of the nature would illustrate the alcoholic problem in various industries, but one can see from the above figures the immense problem which confronts industry today. Whose responsibility is this alcoholic problem? According to Page and Halkins (23):

> The solution to problem drinking lies in the realm of human relations. The first responsibility belongs to those people whose job it is to hire and place in relation to the individual worker's personality. Only when early

> detection and prevention become a systematic objective, will the alcoholic of tomorrow be detected at a time when something positive, constructive and therapeutic can be done for him at a price he can afford to pay.

They continue by saying that the present methods of dealing with this problem are completely inadequate. A few companies such as DuPont, Allis-Chalmers, and Eastman Kodak have set up programs to deal with the alcoholic problem. However, the majority of industries fire the employee as soon as he is detected as an alcoholic. Thus, the prediction of chronic alcoholism becomes an acute problem in industry.

The monetary loss caused by alcoholism to both industry and the individual is overshadowed by the effect alcoholism has upon the individual's relationship to his social environment. Alcoholism creates a vicious circle between the individual and his environment. The steady drinking of an alcoholic usually brings pressure from his family, friends, and employer who join in urging him to give up alcohol. This creates within him greater discord which in turn creates a need for more alcohol. This circle will continue if he is not able to find help and he may eventually lose his family and job. The end of the road for many alcoholics is a jail or a mental institution. Bacon (1) stated that 35 to 80 per cent of those individuals found in the jails and work houses are alcoholics, some serving sentences because they committed a crime while under the influence of alcohol. The welfare agencies are forced to care for the families whose homes are broken because of an alcoholic problem. Bacon (2) summarizes the alcoholic's relationship to society:

> Alcoholism affects the affected individual adversely in all social aspects--marriage, job, religion, citizenship, property care and ownership, neighborhood and friendship associations and so on. . . Adverse circumstances, illness or accident may affect an individual in his amusements, in his daily routine, in his family life, or several ways at once; rarely do they affect all of his life activities, relationships and beliefs and affect all of them adversely. Alcoholism does.

The alcoholic problem is equally great to the community, individual, and industry. If detection and proper therapy are begun early enough, Bacon (1) estimated that it would cost from 90 to 140 dollars to rehabilitate an individual.

As the individual becomes more and more dependent upon alcohol, he becomes more and more of a burden upon society. The possibility of effective therapy decreases. His value to society and industry as a productive worker decreases. His own evaluation of himself becomes more harsh. There is an increased cost of caring for and rehabilitating him and his family and it must be borne by the community. Therefore, if some means could be found to predict and/or diagnose this condition in its early stages, the reward would be great to all concerned.

The question which now must be asked is why does alcohol affect people in different ways? In apparently the same situation, one individual may become an alcoholic, whereas another person will not be affected.

The individual who becomes an alcoholic must experience a need which is satisfied by the use of alcohol. The satisfaction of this need evidently cannot be met in any other manner. At least, the individual has not discovered any effective substitutes. Since the system of values and needs that the individual

has is basic to the make-up of his personality, the measurement of personality should give some insight into these basic needs.

The first step then is to discover the dynamics of the alcoholic's personality. One of the purposes of this research is to describe those dynamics as fully as possible. A second basic purpose is to determine whether a differential diagnosis of chronic alcoholism is possible on the basis of a widely used personality inventory.

One of the most important uses of such a diagnostic tool might be in our public institutions. Most of our institutions, (prisons, mental hospitals) are understaffed. The clientele of these institutions are therefore given screening tests in order to determine therapy or work placement. A diagnostic tool which could differentiate the alcoholic from other types of emotionally disturbed individuals may have important implications in terms of assignment to therapeutic groups. Such a tool might also have important implications for treatment if it can be determined that alcoholics respond differently than other clinical groups to various methods of therapy.

It can be said that in general when there is a great need for the diagnosis or prediction of chronic alcoholism, the diagnostic instrument that has been proposed would be of great usefulness.

Three types of persons use alcohol. They are the social drinkers, the chronic alcoholics and the deteriorated alcoholics. The social drinker as defined by Manson (19):

> . . . . consists of those who have been drinking for a number of years and who are now drinking, but who never,

or only on one or two occasions have had serious trouble due to their drinking. These people can take it or leave it.

The chronic alcoholic is unable to control his drinking; he relies upon it as a crutch. Irrespective of its origin, the chronic alcoholic has come to rely upon alcohol as a means of adjustment to life. He is a steady drinker, and usually one drink is one too many and a thousand is not enough. Once he begins his drinking spree, the duration may be from a week to several months. The chronic alcoholic has not deteriorated mentally and there is a good chance of rehabilitating him. It is this type of alcoholic which is the primary concern of this research.

The deteriorated alcoholic is one who shows signs of mental deterioration and/or psychotic behavior because of his excessive drinking. Many times these persons become psychotic and must be committed to mental institutions. There is little or no hope of rehabilitating them.

The problem drinker in industry is defined by Page (24) as "An individual whose repeated or continued overindulgence interferes with the efficient performance of his work assignment." Since Page defines the alcoholic in terms of repeated or continuous overindulgence, his "problem drinker" is quite similar to the above definition of the chronic alcoholic.

An important question is, which of these three groups of drinkers would profit most from early detection? The social drinker, as defined by Manson (19) would not profit from early detection because his drinking does not cause serious trouble. Since he does not use alcohol for making a basically defensive adjustment,

he does not present a problem which requires diagnosing. The chronic alcoholic, on the other hand, does use alcohol as a defensive method of adjusting. His drinking interferes with his happiness and potentialities as a worker in society. Therefore, if early detection will allow him to make adjustments by more appropriate means than alcohol, it would be of great benefit to both the individual and to society. The last group, the deteriorated alcoholic, is, in most instances, beyond rehabilitation. His drinking has caused organic changes in the body and, consequently, detection in this stage is of little or no value.

Summary

In summary, if early detection of alcoholism is positively related to (a) successful therapy, (b) the happiness and productivity of the individual, and (c) the general welfare of the community, then any knowledge which contributes to the early detection and consequently the rehabilitation of the alcoholic, is a step forward. If alcoholism is related to personality characteristics, one of the most productive areas in the detection of alcoholism should be personality tests. Therefore, this research project was undertaken with the dual purpose of (a) determining if such a differential diagnosis can be made on an existing personality inventory, and (b) determining what the basic personality dynamics of the alcoholic are.

REVIEW OF THE LITERATURE

Psychometric studies which have attempted to deal with problems of alcoholism can be broken down into two groups--those studies which involve projective techniques and those which use objective tests. The studies dealing with projective techniques have dealt more with the dynamics of the alcoholic's personality, while those using objective tests have been concerned with the prediction and/or diagnosis of alcoholism itself.

Projective Tests

Hampton (9) reviews the study conducted by Halpern involving the Rorschach. The subjects were 50 alcoholics all of whom were members of Alcoholics Anonymous (AA).

> The personality of alcoholics when compared with that of non alcoholics is characterized by emotional disturbance. The affective reactions of alcoholics according to Halpern are immature, impulsive and uncontrolled. Alcoholics are unwilling to compromise; they lack inhibition and show little in the way of attempts to resolve their difficulties. In spite of their hypomanic exterior, alcoholics lack self confidence. The feeling of uncertainty expressed, the irritability, tension and depression so characteristic of alcoholics show that they experience considerable anxiety. The extroversion shown by alcoholics according to Halpern is artificial. As a group, alcoholics are predominantly of the introvert personality type.

In reviewing studies by Seliger and Canford, and Billig and Sullivan, Manson (19) tended to confirm the personality picture of the alcoholic as described by Halpern.

Halpern's description of the alcoholic personality is open to question because of serious potential errors in two basic assumptions he makes about the personality of alcoholics. These

assumptions are also made by Hampton (9) and Manson (19); therefore, the same criticism can be levied against them.

First, the assumption is made that the personality dynamics of the alcoholic who participates in AA are no different from those who refuse this program. Since this organization is purely voluntary, the two groups clearly differ in their motivation to accept this kind of help. Such motivation is, in all probability, linked to underlying personality dynamics, making the first assumption very questionable.

Second, the assumption is made that participation in the AA is unrelated to changes in personality structure. Since the AA program is designed to assist the alcoholic to gain insight into his problem and with this insight to change his personality structure so that he may accept and live with his problem, it is also doubtful that the second assumption is valid.

Klebanoff (17) used the Thematic Apperception Test (TAT) in an attempt to ascertain the personality characteristics of the alcoholic. He used only 17 diagnosed, hospitalized alcoholics. He admits that the number of cases is small, but feels that certain results are so definite and consistent that they could scarcely be a function of sampling errors. Klebanoff stated that:

> As the symptomatic chronic alcoholic patient strives to become a man among men, he must struggle simultaneously with his felt inferiorities and his passive and introversive personality structure which prohibits a primarily extratensive rapport with the environment. The transient adjustment afforded by excessive use of alcohol permits a pseudo-extroversive solution but at the same time the social censure involved serves only to heighten the internal stress, conflict and guilt. . . The dynamic bases appear to lie in the insoluble conflict between tremendous social and power inferiority on the one hand and an extremely passive and introversive personality pattern which

> is totally unsympathetic to the underlying psychological needs of the individual.

If these generalizations which projective tests have suggested regarding the alcoholic's personality are valid, then the measurement of these general characteristics should be of some use in differentiating the chronic alcoholic from normal groups. However, some means would still be needed to differentiate the alcoholic from other disturbed groups since the above personality description would seem to fit a number of emotional disorders.

Objective Tests

One of the first attempts to devise a screening test for alcoholics was that of Seliger (26). He constructed a questionnaire of 35 items which could be answered either "yes" or "no." As Seliger stated:

> The questions are based directly on the behavior leading up to alcoholism. If you answer yes to certain of the questions, it means you are using alcohol to find emotional escape from the situation in real life that you find too unpleasant. . . you are using liquor as a crutch to get by.

Since there is no data on the subjects, validity and reliability coefficients, or norms, it is impossible to evaluate this test. Because the information stated above comes from the instructions, it is clear that the test could be easily circumvented.

One of the earliest studies using appropriate experimental techniques was that by Manson (19). From this study grew the "Alcadd Test." At present it is one of the most widely used instruments for the prediction of alcoholism. The purposes of

his study were: (a) to compare a group of alcoholics and non alcoholics on a large number of personality variables, (b) to pick from these characteristics the factors which significantly differentiate the alcoholic from the non alcoholic, and (c) from these findings to construct an objective, practical, valid and reliable paper and pencil test which could differentiate these two groups.

Phase one involved the selection of the items to be used in this test. The items were selected from case histories, clinical interviews, and questions used in personality inventories. A total of 470 items were selected from these sources. These items were then administered to 263 subjects, 137 alcoholics and 126 non alcoholics. Of the original 470 questions, 114 proved to be of some diagnostic value.

Phase two of this investigation consisted of administering the 114 items to a group of 571 subjects. A total of 72 items were found which significantly differentiated the alcoholic from the non alcoholic. These 72 items were then included in his final instrument.

The scores on this test indicated that the alcoholics made consistently higher scores than the non alcoholics. There was a highly significant difference between the mean scores of these two groups. By setting critical scores, he was able to predict correctly 79 per cent of the male alcoholics and 80 per cent of the female alcoholics while falsely identifying only 15 to 20 per cent of the non alcoholics.

He then subjectively analyzed the questionnaires and found

seven characteristics common in alcoholics but not in non alcoholics. These seven traits were: anxiety, depressive fluctuation, emotional sensitivity, feelings of resentment, failure to complete social objectives, feelings of aloneness, and poor interpersonal relationships.

The reliability of this test was .94 while the validity based upon predictability of the test was about .70. Unfortunately, the items on this test appear to be quite obvious. Until further study, it appears that the test would have limited usefulness if it were used in a situation where an honest answer would be detrimental to the individual.

A second study which attempted to devise a test for identifying alcoholics was conducted by Hampton (9). This study was well controlled and used sophisticated research techniques. The Minnesota Multiphasic Personality Inventory (MMPI) and a Personal History Questionnaire were administered to 84 male alcoholics selected from the population of AA organizations in several states. A non alcoholic population, selected from three college groups and similar to the AA members in age, intelligence, education and socio-economic level also took these tests. An item analysis was performed, and all items with a critical ratio of less than 2.00 were discarded. This left 156 items, 125 from the MMPI and 31 from the Personal History Questionnaire. These items were then weighted according to the degree of differentiation. Using these items, a cross validation study was conducted on 250 alcoholics chosen from a second AA population, and a group of non alcoholics chosen from the same college population. The validity bi-serial

coefficient was .74 and the reliability coefficient was .89; therefore, Hampton concludes that this scale is valid and reliable in differentiating alcoholics from non alcoholics.

Two questions must be raised regarding Hampton's population before the results can be accepted without question. The first question has been stated previously. It concerns the use of AA members as representative of the active alcoholic population. The second question concerns the non alcoholic control group. Can it be assumed that these individuals represent a normal population? College populations are generally not representative of a normal population. Comparing the profile patterns of the group of students from the University of Wisconsin and the group of normals reported in the MMPI Atlas, Hathaway and Meehl (13) found that these patterns differ significantly from each other and, therefore, the assumption that a college population is representative of a normal population on this test is dubious. Goodstein (5) has also reported that college populations tend to score higher on this test than does the normal population. Therefore, the generalizability of Hampton's findings is certainly open to question.

Two questions dealing with the practical use of these instruments can be raised about both Hampton's (9) and Manson's (19) questionnaires. First, both authors suggest that their tests be used for screening alcoholics from large populations. They suggest such groups as the army, industry, prisons, and mental institutions as possible places where the tests can be profitably used. Assuming these questionnaires are administered in conjunction

with a regular battery of tests used for the diagnosis and/or placement of individuals, the question can be raised as to the efficiency of administering a separate test. By so doing, the time for administration and scoring is increased as is the overall expense. Usually in a screening battery the interest lies not in a particular dimension of the personality, but in a multi dimensional assessment. Since a multi dimensional personality test is generally given in situations suggested by Hampton and Manson, why not attempt to develop a diagnostic tool on existing personality tests which have proved useful in the more general clinical setting, thus achieving administrative and financial economy? The problem of scoring would be especially troublesome in the case of Hampton's questionnaire, where each question is differentially weighted.

Second, while the authors suggested using their tests for screening alcoholics from a larger population, they have failed to demonstrate that their tests can differentiate alcoholics from patients diagnosed in other clinical groups. To be able to separate alcoholics from normals, as they have done, is a necessary, but not sufficient criterion for an adequate diagnostic scale. In many of the situations in which they suggest using their tests, the problem is one of distinguishing the alcoholic from the abnormal, rather than from the normal individual. Their description of the alcoholic personality is very similar to the personality of disturbed patients in general; yet they have made no attempt to distinguish alcoholics from other clinical groups. Therefore, until further study, these tests should be restricted

to situations where the goal is the separation of non alcoholic normals from alcoholics.

Very little work has been done on devising a scale from existing personality tests. Only two studies have been reported, one by Manson (20) and one by Brown (3). Both used the MMPI, one of the most promising of the objective clinical instruments.

Manson attempted to answer the following questions: (a) What are the relative percentages of alcoholics and non alcoholics with marked psychopathic traits? (b) What are these psychopathic traits? (c) How significant are they? (d) Of what value is the Pd scale as a diagnostic tool? (e) How does the Pd scale compare with the Manson Evaluation (ME)? (f) What is the correlation between them?

He printed separately the 50 Pd questions of the MMPI and administered these items to 438 alcoholics and 486 non alcoholics. He also administered the Manson Evaluation to 571 of these subjects. Three-fourths of his alcoholic population were AA members.

The following results were reported: (a) The percentage of male alcoholics with psychopathic traits was 31.8 while the male non alcoholic was 2.7. (b) There were six areas of personality characteristics by which the two groups were differentiated. These areas were feelings of inadequacy and insecurity, poor social adjustment, poor interpersonal adjustment, feelings of persecution, poor sexual adjustment, and manic behavior. (c) Of the 50 Pd items, 39 differentiated the alcoholic and non alcoholic groups at the five per cent level of confidence. (d) Using the optimum critical score, there were 64 per cent correct predictions from the Pd scale. The ME scale predicted 14.8 per cent more

accurately than did the Pd scale alone. The correlation between the two was .64 for the male alcoholic population.

There are two shortcomings of the study. The first has been mentioned previously--the assumption underlying the use of AA members. Secondly, it is likely that removing and using items of a particular scale out of context will lower the validity of the scale; hence, the lower predictive power of the Pd scale itself may be due to the use of this scale individually.

However, these findings are in agreement with those of Harris and Ives (10), Hewitt (15), and Manson (19).

Manson's study sheds some light on the question of the efficiency of administering a separate test for the prediction of alcoholism. With the lowered validity of the Pd scale, it still correctly predicted 64 per cent of the cases. The Manson Evaluation correctly predicted only 79 per cent of the cases. Is the 15 per cent differential worth the cost of administering and scoring a separate test?

The final research which has been conducted on the problem of alcoholism is the study by Mary Brown. She attempted to identify the measured personality characteristics of two types of chronic alcoholics. Again, the psychometric device was the MMPI and the clinical method was pattern analysis. The MMPI was administered to 126 hospitalized male patients distributed in the following diagnostic categories: 80 chronic alcoholics, 20 psychoneurotics, and 20 psychopathic personalities. The 80 profiles of the chronic alcoholics were then sorted into two groups, those showing neurotic and those showing psychopathic tendencies.

These patterns were then compared with each other and with the profiles of the psychopathic and neurotic personalities. Her results are summarized as follows:

> The chronic alcoholic group as a whole does not show a typical pattern which is readily discernible from other groups. However, when differentiated into those showing primarily neurotic and psychopathic patterns, they show striking differences within the group, and greater similarity to neurotics and psychopathics who do not drink. The neurotic alcoholic is apparently more closely related in the nature of his problem to the non alcoholic neurotic than he is to the alcoholic who exhibits the behavior problems represented by a psychopathic pattern.

In the light of Brown's finding that the chronic alcoholic does not exhibit a typical profile pattern, it is even more important that some method of differential diagnosis be developed.

THE PROBLEM AND METHOD

Objectives

There were two major objectives of this research. The first was to develop indices predictive of chronic alcoholism. The second was to describe the personality characteristics of the chronic alcoholic.

Two general approaches were used in an attempt to accomplish each of these objectives. The first approach involved the examination of mean scores and of the patterns of scores exhibited by alcoholics on the MMPI to determine whether any particular scale or pattern would distinguish them from non alcoholics. It was hoped that such an approach might also give some insight concerning the distinguishing personality characteristics of alcoholics.

The second approach involved the development of a special scale for the identification and prediction of alcoholism. It was hoped that by examining the nature of the individual items of such a scale some insight might also be gained into the personality characteristics of alcoholics.

Meehl (21) has convincingly argued for an empirical rather than a rational approach to the development of personality measures. Such an approach requires (a) two groups of subjects distinguished from one another on the basis of some behavioral characteristic, and (b) a large pool of questions to which these groups can respond. In the present instance, an alcoholic and non alcoholic population were required; a ready-made pool of questions was already available in the form of the MMPI.

The MMPI was used not only because it provides a ready-made pool of items, but because of its wide use in industry, college, mental institutions, and therapeutic agencies. In addition, the multitude of studies which attest to its general validity make its selection for a study of this type highly desirable. It gives a multidimensional picture of the personality rather than a unidimensional one. It is easy to administer and score in a group situation. The availability of the MMPI profiles in various populations likewise served to encourage its use in the present investigation.

Hypothesis

The following hypotheses were set up to be tested:

1. A differential diagnosis can be made on the basis of

the existing scales on the MMPI.

2. The alcoholic's personality will be differentiated from that of normals and of other clinical groups on the basis of certain patterns produced on the MMPI profiles.

3. Certain items on the MMPI will differentiate an alcoholic from a non alcoholic population.

4. These items will give an insight into the personality factors which are involved in alcoholism.

5. These items will measure a personality disturbance which is different from that present in other disturbed groups.

Sample

The subjects used for the different phases of this research were:

1. Alcoholic Population:

a. Group one (A-1) consisted of the first 98 diagnosed chronic alcoholics at the Mental Health Institute in Independence, Iowa, which met the criteria listed below.

b. Group two (A-2) consisted of 79 diagnosed chronic alcoholics from the Willmar State Hospital, Willmar, Minnesota. This group also met the selection criteria. The sample selected from an alcoholic population was part of a larger research at this hospital.

The following criteria were used for the selection of these groups:

1. White, male.

2. Fifth grade education or an indication that the individual

could read and comprehend the test questions. Any indication that the person was unable to understand the questions led the examiner to exclude his answers from the group.

3. A history of heavy drinking for at least a year prior to admission to the institution.

4. Diagnosis of chronic alcoholism made by a physician and/or a clinical psychologist. Any disagreement and/or complications of the diagnosis automatically excluded the person from the sample.

5. The "L" and "?" scales must be within two standard deviations of the mean. An "F" - "K" critical score of 9 (Gough, 7) was used to eliminate any who may have attempted to circumvent the test.

6. The group form of the MMPI had to be administered. Since on the individual form only those items which are scored on the different scales are recorded, the pool of available items would be unnecessarily restricted.

7. No therapy which would attempt to change the personality of the alcoholic or his outlook on his problem could be undertaken during or just prior to the administration of the test. Any therapy which attempted to improve the individual physically was allowed.

2. Normal Population:

a. Group one (N-1) consisted of 50 male V.A. on-the-farm-trainees.

b. Group two, (N-2) consisted of 258 normal Minnesota males selected by Hathaway for research on profile patterns on the MMPI.

c. Group three (N-3) consisted of 139 normal Minnesota males and 54 V.A. Hospital males which Hathaway and McKinley used in the development of their original scales.

The criteria used for these groups were:

1. White, male.

2. The group form of the MMPI had to be used.

3. No known personality disturbances.

3. Clinical Population:

a. Group one (C-1) was composed of 33 diagnosed psychoneurotics from the Mental Hygiene Clinic at Fort Snelling, Minnesota. This population consisted of the first 33 numbered cases from 146 which were tested for a special project. Only those with a primary diagnostic impression of psychoneurosis were included in this group.

b. Group two (C-2) consisted of 24 male moderate psychoneurotics tested by Gough. They were selected from the neuropsychiatric section of the Station Hospital at Camp Beale, California.

c. Group three (C-3) consisted of 22 male psychotic patients tested by Gough and also selected from the neuropsychiatric section at the Station Hospital at Camp Beale, California.

d. Group four (C-4) was composed of 710 males with various psychiatric diagnoses selected by Hathaway for research on the analysis of profile patterns.

The criteria used in the selection of clinical groups were:

1. Male.

2. The group form of the MMPI.

3. Classified according to a homogeneous diagnostic category.

While groups two and three are labeled as normal and clinical, it is recognized that these groups do not represent random samples of defined populations. It was hoped that other clinical groups could be included in the sample in order to give a more complete representation to the abnormal population; however, this was administratively impossible. Group N-1, while certainly not a random sample of normal population, was selected because it was believed to be more representative of such a group than would be college students--the only other available "normal" population.

Procedure

Differential Diagnosis of Chronic Alcoholics: Phase one consisted of an analysis of the mean scores on the MMPI scale of a group of alcoholics and three other groups. Phase two involved the analysis of the patterns exhibited by the alcoholic on the MMPI. These patterns were then compared with a group of normals and a group of psychiatric cases. Phase three consisted of an item analysis of MMPI responses given by two groups. The percentages of the "plus responses" (Hathaway and McKinley, 11) for every item of the A-1 group were determined and compared with the percentages of "plus responses" for each item obtained by the N-3 group. Significant differences were determined by the nomographs worked out by Zubin (28).

Those items significant at the .002 level of confidence and for which the percentage difference was at least 15 per cent

between the A-1 and the N-3 groups were included on the scale. It was felt that with these standards the scale would differentiate the alcoholic from the non alcoholic with a greater degree of efficiency than would items selected with less rigorous standards. The items in the scale were scored on the A-2 group which constituted a cross-validation group.

Validity of the Scale: The fourth phase of the investigation attempted to determine a critical score which would differentiate the chronic alcoholic from other known groups. A comparison was made of the scores of alcoholics and of groups of normal and disturbed individuals.

There was no attempt to establish the reliability of this scale. This important project had to be postponed because of unforeseen administrative difficulties.

Description of the Alcoholic Personality: Phase five consisted of the analysis of mean scores and also of the MMPI profile patterns in an attempt to gain insight into the personality dynamics of the chronic alcoholic. The items on the alcoholic scale were also classified to determine the psychological and sociological factors which seem to be operating in the alcoholic's personality.

RESULTS AND DISCUSSION

Introduction

As was pointed out in the Review of Literature, only a few studies have been concerned with the personality characteristics

of alcoholics. None of these studies has attempted to differentiate and/or diagnose the alcoholic from other known clinical groups. Yet those studies which have been conducted describe the alcoholic in terms which are commonly used to describe other manifestations of personality disturbance. This raises the following questions: Is it possible to differentiate the alcoholic from other known clinical groups on existing personality tests? If so, what are the differentiating dynamics in these groups?

One purpose of this research is to differentiate the chronic alcoholic on the MMPI from other disturbed groups and from normal individuals. A second purpose is to describe the alcoholic's personality on the basis of his responses to this test.

Differential Diagnosis

Descriptions of the alcoholic's personality in the literature have been largely in terms of abnormal characteristics. If the descriptions are accurate, then existing personality tests which are devised to test these characteristics should be able to differentiate the alcoholic from other known clinical groups.

Two approaches were used to test the hypothesis that the MMPI will yield a differential diagnosis of chronic alcoholism. Mean Profiles: The first approach consisted of comparing mean scores on the different clinical scales of three known groups and a group of alcoholics. The alcoholic group for these comparisons consisted of a composite of the alcoholic populations (A-1 and A-2) described in the previous pages.

Fig. 1 presents the comparison of the mean scores for the alcoholic and the normal (N-2) groups.

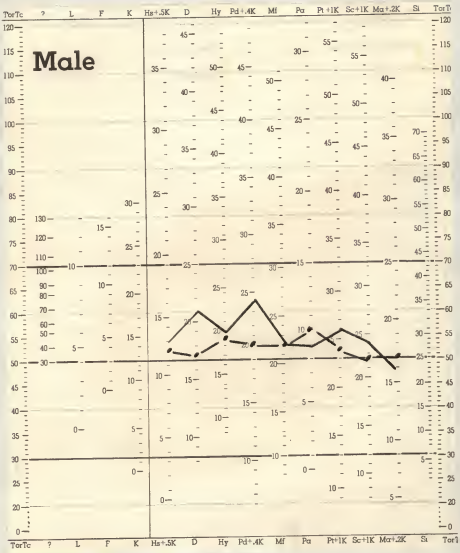

Fig. 1. Comparison of the Mean Scores of a Group of 177 Alcoholics With a Group of 50 Normals as tested by Brayfield.*

Key

_____ Alcoholic

— . — Normal

*Personal communication from Dr. Brayfield.

Three of these scales (D, Pd, and Pt) are significantly different. If only random factors were operating, one would expect less than one of the nine scales to show a significant difference. While these mean scores are not markedly different, they cannot be considered to originate from the same parent population.

Fig. 2 compares the mean scores of the alcoholic with the mean scores of the moderate psychoneurotic group of Gough's sample (C-2).

Six of these scales (Hs, D, Hy, Pt, Sc, and Ma) show significantly different means. This is also greater than would be expected by chance; therefore, the conclusion must again be drawn that these two groups do not originate from the same parent population. With the very marked elevation of the neurotic triad (Hs, D, Hy) in the psychoneurotic group, it is much easier to differentiate the neurotic from the alcoholic than it is the alcoholic from the normal. In the former comparison there are not only statistical but also practical significant differences.

Fig. 3 shows the mean scores of the alcoholic group and Gough's psychotic group (C-3).

This comparison reveals only one non-significant scale, Mf. With the exception of two scales (Mf and Ma) all of the mean scores of the C-3 group are above a "T" score of 70. Therefore, on the basis of the general elevation of the profiles, the differentiation between these psychotics and alcoholics appears to be quite feasible.

Summarizing these three groups of comparisons it is apparent

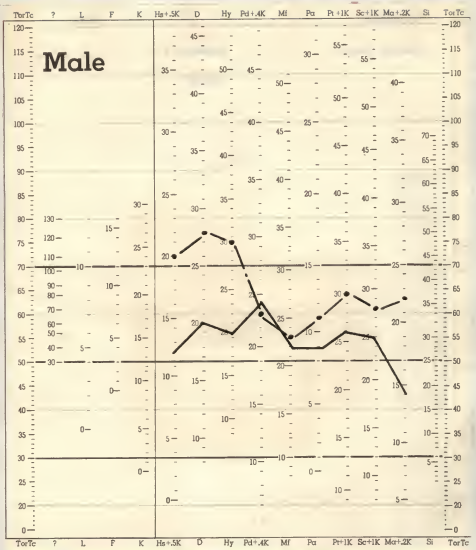

Fig. 2. Comparison of the Mean Scores of a Group of 177 Alcoholics With a Group of 24 Moderate Psychoneurotics as tested by Gough (6).

Key

_____ Alcoholic

— . — Psychoneurotic

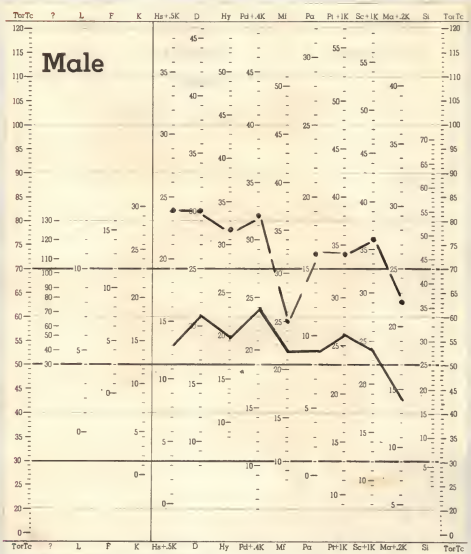

Fig. 3. Comparison of the Mean Scores of a Group of 177 Alcoholics With a Group of 22 Psychotic Patients as tested by Gough (6).

Key

_____ Alcoholic

__ . __ Psychotic

that, while the alcoholic differs from all three groups in terms of mean scores, he is more similar to the normal group than he is to the abnormal groups. This suggests the possibility of differentiating the chronic alcoholic from other disturbed groups on the basis of general profile elevation. This is especially true when the psychotic group is considered. In the psychoneurotic group, the best differential sign appears to be the general elevation of the neurotic triad.

The normal group, however, is not so easily differentiated. While the mean scores are significantly different in terms of statistical significance, the differences are so small as to cast doubt upon their practical implications. It seems likely that an attempt to differentiate the alcoholic from normals on the basis of profile elevation would be unrewarding.

Pattern Analysis: Regardless of how elevated MMPI profiles are, the pattern of scores obtained may have differential diagnostic value. In the only experimental investigation of this hypothesis in an alcoholic population, Brown was unable to find any particular pattern typical of the alcoholic.

Can the alcoholic be differentiated from other disturbed groups and from normals on the basis of Multiphasic patterns? While alcoholics may not exhibit one particular pattern, they may exhibit several different patterns which would distinguish them from these groups. Therefore, the second approach used in an attempt to ascertain the possibility of using the MMPI for differential diagnostic purposes was a pattern analysis.

The composite alcoholic population profiles were coded

according to Hathaway's coding method (13). Only the two highest scales with total "T" scores of above 54 were coded. In accordance with Hathaway's system, special note was taken of scores above 70. These patterns were then compared with those of two other samples, N-3 and C-4. The results of these comparisons are found in Table 1.

The following conclusions can be drawn from these patterns:

a. The alcoholic and the psychiatric group differ significantly in the patterns exhibited. Using the five per cent level of confidence, we would expect by chance to announce 3.25 significant differences; actually, 26 such differences were found.

b. The alcoholics and the normal group differ significantly in the patterns exhibited. Using the five per cent level of confidence, we would expect by chance to announce 3.25 significant differences; actually, 18 such differences were found.

c. The percentage of alcoholics exhibiting scores 70 is significantly different from the psychiatric sample, the psychiatric group exhibiting more.

d. The percentage of alcoholics exhibiting scores of 70 shows no difference from the normal sample.

Conclusions c and d confirm the earlier findings in terms of the diagnostic significance of profile elevation. Markedly elevated profiles tend to belong to the psychiatric sample much more frequently than to either the alcoholic or normal samples.

e. The Pd scale (4) is consistently the highest peaked scale for the alcoholic.

f. The neurotic triad (1, 2, and 3) is elevated more

Table 1. Percentages of total "T" scores above 54 and equal to or above 70 of 177 alcoholics, 258 normal Minnesota males, and 710 psychiatric males.

Pattern[1]	Alcoholics		Normals		Psychiatric	
	Total	70	Total	70	Total	70
--	0.60	0.00	23.60*	0.00	1.80	0.00
1-	0.00	0.00	1.30*	0.00	0.00	0.00
1-2	2.80	1.70	2.70	0.80	3.80	3.70
1-3	0.00	0.00	3.50*	2.30*	6.10*	5.80*
1-4	2.30	0.60	0.40	0.40	1.40*	1.30
1-6	0.00	0.00	0.00	0.00	0.10	0.00
1-7	0.60	0.00	0.40	0.40	0.60	0.60*
1-8	0.60	0.00	1.60	0.40	1.30	1.10*
1-9	0.00	0.00	0.80	0.00	0.80*	0.60*
2-	0.60	0.00	1.90	0.00	0.30	0.00
2-1	2.30	2.30	0.80	0.40	6.60*	6.20*
2-3	2.80	1.10	1.20	0.00	3.80	3.20*
2-4	6.60	2.80	0.40*	0.40	2.40*	1.30
2-6	0.60	0.00	0.80	0.40	1.10	1.00*
2-7	3.40	2.30	0.80	0.40	9.90*	9.30*
2-8	0.60	0.00	0.00	0.00	2.00	0.40
2-9	1.10-	0.00	0.80	0.00	0.30	0.30
3-	0.60	0.00	1.90	0.00	0.40	0.00
3-1	2.30	1.10	1.60	0.00	2.70	2.30
3-2	1.10	0.00	0.80	0.40	1.30	0.60
3-4	2.80	0.60	1.20	0.00	0.60	0.40
3-6	0.00	0.00	0.00	0.00	0.10	0.00
3-7	0.00	0.00	0.00	0.00	0.10	0.00
3-8	0.00	0.00	1.20*	0.00	0.40	0.00
3-9	0.60	0.00	0.40	0.00	0.30	0.00
4-	3.40	0.60	2.70	0.00	0.70	0.60
4-1	4.00	2.30	0.40*	0.00*	0.70*	0.60
4-2	9.60	4.00	0.80*	0.00*	4.10*	3.10
4-3	8.50	1.10	3.50	0.40	2.40*	1.50
4-6	6.20	1.70	0.00*	0.00*	1.50*	1.20
4-7	2.80	1.10	0.40	0.00	1.40*	1.00
4-8	4.00	0.60	1.90	0.80	4.60	3.80*
4-9	14.10	2.30	1.90*	0.80	3.00*	1.50
6-	0.00	0.00	1.20*	0.00	0.00	0.00
6-1	0.00	0.00	0.40	0.00	0.00	0.00
6-2	1.10	1.10	1.60	0.00	0.80	0.60
6-3	1.10	0.00	0.40	0.00	0.10*	0.00
6-4	0.00	0.00	2.30*	0.00	0.70*	0.30
6-7	1.10	0.00	0.80	0.00	0.40	0.40
6-8	0.00	0.00	0.40	0.40	1.00*	1.00
6-9	0.00	0.00	0.80	0.00	0.40	0.10

Table 1. (Concl.)

Pattern	Alcoholics		Normals		Psychiatric	
	Total	70	Total	70	Total	70
7-	0.00	0.00	1.60*	0.00	0.00	0.00
7-1	0.00	0.00	1.20*	0.00	0.60*	0.60*
7-2	1.70	0.60	1.20	0.80	3.80	3.70*
7-3	0.00	0.00	0.00	0.00	0.00	0.00
7-4	0.60	0.00	0.00	0.00	0.60	0.40
7-6	0.60	0.00	0.00	0.00	0.40	0.10
7-8	0.60	0.60	1.20	0.80	2.40*	2.00
7-9	0.00	0.00	1.20*	0.00	0.30	0.10
8-	0.00	0.00	0.40	0.00	0.00	0.00
8-1	0.00	0.00	1.20*	0.00	1.10*	1.00*
8-2	0.00	0.00	0.80	0.00	1.70*	1.50*
8-3	0.00	0.00	0.00	0.00	0.40	0.30
8-4	0.00	0.00	1.20*	0.00	1.80*	1.10*
8-6	0.00	0.00	0.80	0.00	1.10*	0.80*
8-7	0.60	0.00	0.40	0.00	3.20*	3.20*
8-9	0.60	0.60	0.40	0.40	1.50	1.40
9-	2.80	0.00	9.30*	0.80	1.10	0.30
9-1	0.00	0.00	0.00	0.00	0.60*	0.40
9-2	0.00	0.00	0.40	0.00	1.00*	0.30
9-3	0.00	0.00	0.80	0.00	0.80*	0.10
9-4	3.40	1.10	4.30	1.90	1.70	1.50
9-6	1.10	0.00	0.80	0.80	0.40	0.40
9-7	0.00-	0.00	1.20*	0.40	0.10	0.10
9-8	0.60	0.60	0.80	0.40	2.10*	2.10*

[1]Key to pattern codes: 1 - Hs 3 - Hy 6 - Pa 8 - Sc
2 - D 4 - Pd 7 - Pt 9 - Ma

*Significant at five per cent level.

frequently than is the psychotic triad (6, 8, and 9) in the alcoholic group.

g. The alcoholic can be differentiated from the normal group by the percentage of normals displaying no "T" score above 54. If any one scale is elevated in the normal profile, it will probably be the Ma scale.

h. The alcoholic pattern can be differentiated from the

psychiatric pattern. The depression scale is the most frequently elevated scale in the psychiatric pattern. The hysterical scale is the second most frequently elevated scale.

The conclusions drawn from the pattern analysis indicate that the alcoholic can be differentiated on the basis of the patterns exhibited on the profiles. It is much easier to differentiate the disturbed group from the alcoholics. The reason appears to be the heterogeneity of the patterns exhibited by the psychiatric group.

Summarizing the findings of these two phases of the research, the conclusion must be drawn that some means, other than profile elevation or pattern analysis, must be used if a differential diagnosis of chronic alcoholism is to be made when dealing with a normal population. On the basis of mean scores and patterns exhibited on this test, a differentiation can be made between the alcoholic and other clinical groups. As for normals, while there is generally a statistically significant difference between the two groups, the practical significance which will make feasible the differential diagnosis of chronic alcoholism is absent.

Hathaway and McKinley (11) have shown that a successful differential diagnosis of various clinical syndromes can be made by analyzing the answers of these groups to the MMPI questions. If alcoholism is related to personality characteristics, as hypothesized in this paper, then it should be possible to develop a special scale on this test which would distinguish the chronic alcoholic from the normal population.

Development of the Alcoholic Scale. An item analysis comparing

the A-1 group with the N-1 group was undertaken. A total of 86 items with significant differences at the .002 level were found. Again, practical significance was employed; only those items which had a difference of at least 15 per cent were included in the scale. Of the 86 original items, only 68 remained. These 68 items were included in the alcoholic scale.

The items are listed in Table 2 together with the booklet number, significant response, scale or scales on which they are scored, and the percentage of normal and alcoholic groups giving significant response.

Table 2. Significant items included in the alcoholic scale, item number, per cent answering in significant direction, key, and scales on which they are scored.

Item	Per cent answering in significant direction		Key	Scale
	Normal	Alcoholic		
1. I feel that it is certainly best to keep my mouth shut when I'm in trouble. (26)*	18	39	F	Mf Hy
2. At times I feel like smashing things. (39)	48	10	F	K
3. My judgment is better than it ever was. (46)	13	43	F	D
4. I have not lived the right kind of life. (61)	17	71	T	Pd
5. I do many things which I regret afterwards (I regret more or more often than others seem to). (94)	30	52	T	Pt Pd

*Item number.

Table 2. (Cont.)

Item	Per cent answering in significant direction: Normal	Alcoholic	Key	Scale
6. I go to church most every week. (95)	54	75	F	D
7. I have met problems so full of possibilities that I have been unable to make up my mind about them. (100)	50	70	T	Ma
8. My hardest battles are with myself. (102)	55	75	T	Pt Pd
9. I know who is responsible for most of my troubles. (127)	29	66	T	Ma Pd Pa
10. I do not worry about catching diseases. (131)	32	14	T	D
11. I like to cook. (140)	41	63	T	Mf
12. I would like to be a soldier. (144)	61	38	F	Mf
13. At times I feel like picking a fist fight with someone. (145)	24	06	F	D
14. I am neither gaining nor losing weight. (155)	14	43	F	Pd D Hs
15. I have used alcohol excessively. (215)	10	82	T	Pd F
16. I think I would like the work of a contractor. (219)	31	57	T	Mf D
17. It is not hard for me to ask help from my friends even though I cannot return the favor. (222)	14	31	T	Ma
18. My relatives are nearly all in sympathy with me. (237)	27	48	F	Pd
19. I have been disappointed in love. (239)	17	38	T	Pd

Table 2. (Cont.)

Item	Per cent answering in significant direction: Normal	Alcoholic	Key	Scale
20. I am entirely self-confident. (264)	37	61	F	Mf
21. I have very few fears compared to my friends. (287)	28	48	F	Pd
22. I am always disgusted with the law when a criminal is freed through the arguments of a good lawyer. (289)	17	45	F	Ma Hy Pd
23. I am not likely to speak to people until they speak to me. (292)	42	24	F	Si Hy
24. I have never been in trouble with the law. (294)	15	70	F	Pd Pa
25. There never was a time in my life when I liked to play with dolls. (300)	35	55	F	Mf
26. I worry over money and business. (322)	63	38	F	Sc K
27. My father or mother often made me obey even when I thought it was unreasonable. (327)	22	46	F	Pa
28. I feel anxiety about something or someone almost all the time. (337)	26	08	F	Pt
29. I usually have to stop and think before I act even in trifling matters. (343)	38	15	F	Pt
30. I have a habit of counting things that are not important such as bulbs on electric signs, and so forth. (346)	20	02	F	Pt

Table 2. (Cont.)

Item	Per cent answering in significant direction: Normal	Alcoholic	Key	Scale
31. I tend to be on my guard with people who are somewhat more friendly than I had expected. (348)	16	37	F	Pa
32. I get anxious and upset when I have to make a short trip away from home. (351)	19	03	F	Pt
33. Sometimes some unimportant thought will run through my mind and bother me for days. (359)	32	11	F	Si Pt
34. I am inclined to take things hard. (361)	42	18	F	Pt
35. I feel uneasy indoors. (365)	38	15	F	Pa
36. Even when I am with people I feel lonely much of the time. (366)	17	02	F	Sc Pt
37. When I am feeling very happy and active someone who is blue or low will spoil it all. (375)	34	17	F	
38. I do not like to see women smoke. (378)	21	61	F	
39. People often disappoint me. (383)	54	32	F	Si K
40. I like to keep people guessing what I'm going to do next. (386)	37	14	F	
41. The only miracles I know are simply tricks that other people play on one another. (387)	47	69	F	

Table 2. (Cont.)

Item	Per cent answering in significant direction: Normal	Alcoholic	Key	Scale
42. It makes me feel like a failure when I hear of the success of someone I know well. (411)	37	17	F	Si
43. If given the chance I would make a good leader of people. (415)	37	65	F	Si
44. I have had some very unusual religious experiences. (420)	21	04	F	
45. One or more members of my family is very nervous. (421)	43	21	F	Si
46. I am embarrassed by dirty stories. (427)	40	20	T	Si
47. I have strong political opinions. (432)	37	16	F	
48. I used to have imaginary companions. (433)	24	03	F	
49. People usually demand more respect for their own rights than they are willing to allow for others. (436)	17	33	F	Si
50. It is all right to get around the law if you don't actually break it. (437)	37	62	T	
51. I enjoy gambling for small stakes. (446)	34	67	T	Si
52. I have one or more bad habits which are so strong that it is no use in fighting against them. (459)	24	04	F	
53. I have used alcohol moderately (or not at all). (460)	12	49	F	

Table 2. (Cont.)

Item	Per cent answering in significant direction: Normal	Alcoholic	Key	Scale
54. I have several times had a change of heart about my life work. (465)	42	63	T	
55. I am fascinated by fire. (472)	32	09	F	
56. Whenever possible I avoid being in a crowd. (473)	26	10	F	
57. If I were in trouble with several friends who were equally to blame, I would rather take the blame than to give them away. (477)	29	63	T	
58. Christ performed miracles such as changing water into wine. (483)	09	25	F	
59. It is unusual for me to express strong approval or disapproval of the actions of others. (503)	52	73	T	
60. I have had periods when I felt so full of pep that sleep did not seem necessary for days at a time. (505)	28	07	F	Si
61. I think Lincoln was greater than Washington. (513)	28	52	F	
62. Some of my family have quick tempers. (516)	27	51	F	
63. I am not afraid of picking up a disease or germs from door knobs. (524)	28	11	T	
64. I am not bothered by a great deal of belching of gas from my stomach. (533)	31	10	T	

Table 2. (Concl.)

Item	Per cent answering in significant direction: Normal	Alcoholic	Key	Scale
65. If I were an artist I would like to draw children. (554)	30	63	T	
66. I sometimes feel that I am about to go to pieces. (555)	20	06	F	
67. A large number of people are guilty of bad sexual conduct. (558)	13	29	F	
68. I am greatly bothered by forgetting where I put things. (560)	28	07	F	

This scale was then scored on a second group of alcoholics (A-2) who were similar to the original group in terms of criteria used in the selection. The means and standard deviations of these two groups on the alcoholic scale are listed in Table 3. The difference between these two means is significant at the five per cent level of confidence with the second group scoring higher. To find the cross-validation group scoring higher than the group from which the scale was developed is an unusual finding indeed. Such a finding raises the question, "In what ways do the two alcoholic groups differ?"

The means and standard deviations of the clinical scales on the MMPI and age for these two samples are presented in Table 4. Of the 11 scales, five (K, D, Pt, Sc, and Ma) are significantly different at the five per cent level of confidence. This is

Table 3. Comparative scores on the alcoholic scale.

Group	Means	Standard Deviation	Differences	"t"
Alcoholic A-1	25.49	5.10	2.98	4.83*
A-2	28.47	5.13		
Normal N-2	20.00	4.95	8.47	9.21*
Clinical C-1	26.42	7.39	2.05	1.45*

*Significant at the five per cent level of confidence.

Table 4. Means and standard deviations of the MMPI scales, and age of the original and cross validation alcoholic population.

	Original Population		Cross Validation Population		
Scales:	Means	Standard Deviations:	Means	Standard Deviations:	"t"
L	4.38	2.25	2.94	1.86	4.040*
F	4.46	2.60	4.84	2.43	0.309
K	15.96	4.19	12.89	5.05	4.410*
Hs	4.85	4.29	6.00	5.28	1.601
D	20.18	5.25	22.27	6.07	2.450
Hy	20.11	4.59	20.77	6.25	0.079
Pd	20.26	4.10	22.10	5.94	0.950
Mf	22.19	4.41	21.90	2.18	0.580
Pa	9.53	2.49	9.96	3.08	1.020
Pt	8.47	5.59	15.34	3.21	7.190*
Sc	1.71	3.12	11.08	7.54	4.290*
Ma	15.45	4.34	18.10	4.04	4.150*
Si	24.42	7.24	26.35	9.70	1.610
Age	41.69	10.67	36.04	5.97	4.450*

*Significant at the five per cent level of confidence.

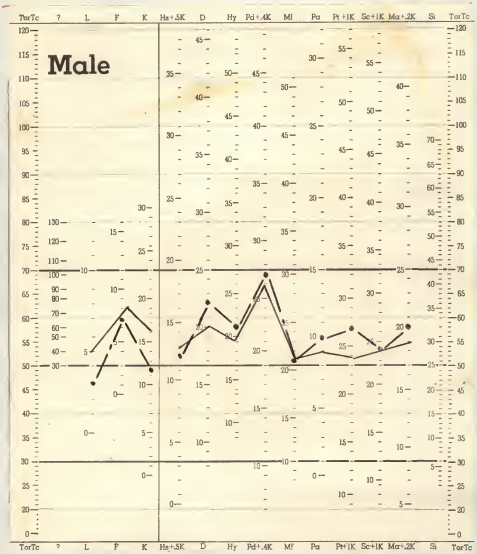

Fig. 4. Mean Scores of the Original and Cross Validation Alcoholic Population on the MMPI Scales.

Key

_____ Original Population (A-1)

___ . ___ Cross Validation (A-2)

greater than would be expected by chance. Mean age also differs significantly.

While these two groups are similar in terms of the selection criteria, it is obvious that they differ in terms of the degree of disturbance as measured by the MMPI. The A-2 group, in general, scores higher on the clinical scales than does the A-1 group. Furthermore, the A-2 group is significantly younger than the A-1 group. Therefore, the conclusion must be drawn that they are not from the same parent population.

Fig. 4 indicates the mean profiles for the two alcoholic samples.

These results raise two questions. First of all, is there a relationship between the score on the alcoholic scale and age? Secondly, is the increase of the mean scores on the alcoholic scale in the A-2 group because of their apparently greater personality disturbance?

Using a scattergram, there appears to be little or no relationship between the score on the scale and the age of the individual. Therefore, the first question seemingly is answered in the negative.

The mean scores and standard deviations of two other known groups (N-1 and C-1) are also found in Table 2. When these groups are compared with the A-2 group, the following conclusions can be drawn: (a) there is a significant difference between the mean score of the alcoholic group and the mean score of the normal group; (b) there are no differences between the mean score of the alcoholic and the mean score of the psychoneurotic group; (c) the

normal group score is lower than the score of the alcoholic group.

The results of this comparison indicate that the scale is accomplishing its purpose in distinguishing between the alcoholic and the normal. There is no differentiation, however, between the alcoholic and the psychoneurotic group. It appears, then, that this scale is measuring a general personality disturbance rather than a disturbance specific to alcoholics.

The answer to the question raised regarding the elevation of the alcoholic score in the cross-validation group can, then, be tentatively answered. The increase in score appears to be caused by the increased degree of personality disturbance.

Critical Scores: If this scale is to be used effectively, a critical score must be determined which will differentiate the alcoholic from other groups, especially the normal group. Table 5 gives the percentages of correctly identified and misidentified subjects using the various critical scores on the alcoholic scale.

Table 5. Percentages identified as alcoholics and identified as non alcoholics using critical scores.

	Alcoholic		Normal		Psychoneurotic	
Critical Scores	% identified as alcoholics	% identified as non alcoholics	% identified as alcoholics	% identified as non alcoholics	% identified as alcoholics	% identified as non alcoholics
21	91.53	8.47	40.00	60.00	81.81	18.19
22	85.32	14.68	30.00	70.00	69.69	30.31
23	81.37	18.16	30.00	70.00	63.63	36.37
24	75.72	24.28	20.00	80.00	60.61	39.39
25	68.81	32.19	20.00	80.00	45.46	54.54

The following conclusions can be drawn from Table 5:

A. No critical score differentiates the alcoholic from the psychoneurotic with any degree of consistency. This is not surprising in view of the fact that the mean scores on the scale are not significantly different.

B. A critical score can be determined to differentiate the alcoholic from the normal group with a high degree of consistency. Previous results show that the alcoholic's scores on the traditional MMPI scales are quite similar to those of the normal group; hence the differentiations made possible by the use of critical scores takes on added significance.

Thus, the accomplishment of the first major objective has been obtained--the differential diagnosis of the chronic alcoholic on an existing personality test. He can be differentiated from the abnormal groups on the basis of the elevation of his score and/or pattern exhibited on this test. However, the patterns and/or scores will not differentiate the alcoholic from the normal group in a satisfactory manner. A special scale was devised which did differentiate these two groups. While this scale distinguished the alcoholic from the normal with a high degree of consistency, it did not distinguish the alcoholic from other clinical groups.

These results must be interpreted with some caution. Since the samples which were used cannot be considered to be representative of any population, further research on more representative groups will have to be undertaken before these results can be accepted without question. Also, it must be recognized that using the best critical score, 24 per cent of the alcoholics and 20 per cent of the normals are still misidentified.

Since this distinction has been accomplished, attention is now turned to the second of the major objectives, namely, what are the personality dynamics which are revealed by the distinguishing indices?

THE DESCRIPTION OF THE ALCOHOLIC'S PERSONALITY

Two methods were used to describe the personality of the alcoholic as far as it is revealed in his MMPI responses. The first was a subjective analysis of the items which were included on the alcoholic scale. The following picture was obtained. The item or items contributing to the descriptions are noted in parentheses.

The personality of the alcoholic as it appears to other people is quite different from his true inward feelings. To others he likes to appear as extrovertive, out going, and friendly. These feelings, however, are inconsistent with his true feelings of inferiority, insecurity, and lack of self confidence. His answers to the questions on this test, in most instances, attempt to make him appear as the extrovertive individual he wishes to appear to other people.

He feels a great need for people to like and accept him (473, 472, 503, 558). One method of obtaining this position of acceptance is by going down the "middle of the road" and being non-committal about life (432, 513). He wishes to appear as a free and easy-going individual (39, 292, 372, 343, 348, 375, 366, 383, 336, and 427), calm, letting nothing bother him (351, 359, 361, 421, 505, 555, 560). Two methods he uses to attempt to

maintain this position are by friendliness toward everyone (145, 378, 411) and by building himself up in the eyes of his associates (300, 459). However, underneath, he is nervous (100) and anxious (287).

In reality, his basic feelings are ones of insecurity (102, 300, 465), inferiority (94, 140, 554) and a lack of self confidence (46, 264). He distrusts people (127), feeling that they are out to get the most out of life. The alcoholic is in general conflict with the social mores of his culture (222, 289, 337). He is rather immature, self centered (26), and impulsive (343). He is nervous (100), anxious (287), and has feelings of guilt (215, 327). He shows little or no insight regarding his drinking problem (215, 460).

Sociologically he has had an unhappy home life (239) and has had trouble with relatives (237), probably concerning his drinking.

There is one item which may reflect the situation in which the alcoholic finds himself, rather than contributing to the description of the alcoholic's personality. It deals with the health of the individual (155). Since the alcoholic is usually physically run-down at the end of a drinking spree and one of the first therapeutic steps is physical rehabilitation, the alcoholic may be overly concerned with his health.

The personality characteristics revealed by the pattern analysis and by the analysis of the mean scores tended to confirm the above description of the alcoholic's personality. The alcoholic is a social deviate (Pd). He has little emotional response

and tends to be in general conflict with the social mores of his culture. He also exhibits hypochondriacal, depressive, and hysterical tendencies (Hs, D, Hy). He seems to be somewhat lethargic and lacks drive or ambition (low Ma). Probably this is related to the depressive symptons which he exhibits.

DISCUSSION

The results of this study indicate that a differential diagnosis of chronic alcoholism can be made on the MMPI. There are two methods by which this diagnosis can be made. The method used will depend upon the nature of the population in which the diagnosis is to be determined.

It must be recognized that the samples of abnormal populations presented in this study are not randomly selected, nor do they represent the total abnormal population. Therefore, definite conclusions regarding the effectiveness of these two methods is dependent upon further research bearing out the conclusions.

A differentiation of the chronic alcoholic from the clinical groups can be made on the basis of general profile elevation, or on the basis of patterns exhibited by the alcoholic. Alcoholism appears to be related to the degree of personality disturbance reflected in the MMPI. This disturbance does not appear to be as marked as that found in other clinical groups and, in fact, is so slight as to make it a poor differentiator of alcoholics from normals. In comparison with alcoholics, MMPI scores of other clinical groups are sufficiently elevated that a successful differential diagnosis is feasible on that basis.

The pattern analysis reveals that the alcoholic can be differentiated on the basis of exhibited patterns. It is much easier to distinguish the alcoholic from the psychiatric pattern than from the normal pattern. The chief characteristic of the alcoholic pattern is an elevated Pd scale. Over 50 per cent of the alcoholics indicate this tendency toward social deviation. This finding suggests the futility of attempting to distinguish the alcoholic on the basis of one pattern because the other 50 per cent exhibit random patterns with no elevation in the Pd scale. This also confirms the hypothesis that there is no "true" alcoholic personality. The etiological factors of alcoholism seem to stem from a variety of personality characteristics.

In using the MMPI for differential diagnosis, the problem which arises is distinguishing between the alcoholic and the normal. Since the two groups are not adequately distinguished in terms of existing scales and patterns, a scale was devised to differentiate them. Again, it is important to point out that the normal groups used in this research were not selected randomly, nor are they probably representative of a normal group. Therefore, further research must confirm the results of this study before they can be accepted without qualification.

The scale which was developed differentiated alcoholics from normals with a high degree of consistency. Using critical scores it appears possible to make a differential diagnosis of chronic alcoholism on the basis of the scale. This scale, however, apparently is not measuring a particular personality disturbance called alcoholism, but a more general personality disturbance. As was noted above,

this disturbance is not so severe as found in abnormal groups, but it is not mild enough to consider the personality normal.

The use of this scale in such institutions as prisons and mental hospitals would be highly ineffective. The professional workers in these institutions are dealing with disturbed persons more frequently than they are with normals. Since the scale will not differentiate the disturbed individual from the alcoholic with any effectiveness, the use of this scale might confuse the diagnosis rather than clarify it. However, the diagnosis of alcoholism is greatly facilitated by adequate social history, which is usually available in such situations. In addition, the diagnostic signs of profile elevation and profile pattern, noted earlier, should prove to be valuable aids to workers in these settings.

In many situations such as industry, social agencies, and the army where an adequate social history is not readily available, this scale could be of some use. These groups deal more with the normal individual, who is more easily distinguished from the alcoholic by this scale.

The personality characteristics of the alcoholic as revealed by the test, tend to confirm the hypothesis that there is no true "alcoholic personality." A description of personality characteristics of alcoholics, as a group, includes feelings of inferiority, insecurity, and lack of self confidence. An attempt is made to compensate for these feelings by appearing to be extrovertive toward his associates. The wide variability of needs and defenses within the alcoholic population makes the generalization of these attributes to individual alcoholics extremely hazardous.

SUMMARY AND CONCLUSIONS

This research had two basic objectives. The first was the differential diagnosis of the chronic alcoholic on the basis of the MMPI. Two attempts to accomplish this objective were made. The first involved the differentiation of the alcoholic from other defined groups on the basis of existing scales; method two required the development of a special scale for the diagnosis of chronic alcoholism.

The second major objective was to describe the personality dynamics of the alcoholic insofar as they are revealed by the diagnostic indices.

The need for such a study is obvious. If a differential diagnosis of chronic alcoholism can be made on the basis of the MMPI, then the time and expense required for this diagnosis will be greatly reduced. Likewise, since effective therapy can be reasonably supposed to be related to early diagnosis, effective differentiation would be of great benefit, not only to the individual alcoholic, but to industry, the armed forces, mental institutions or to professional workers in any setting which requires the diagnosis of mental illness. It has been stated that there is no true alcoholic personality. Even if this is so, any contributions which will aid in the understanding of the alcoholic and his problems would be of great value. A description of the personality characteristics of chronic alcoholism may give some insight into the etiological factors behind this mental disease.

The subjects used for the various phases of this research were as follows: Normals (a) 50 on-the-farm trainees (N-1),

(b) 258 normal Minnesota males (N-2), and (c) 139 normal Minnesota males and 54 VA hospitalized males (N-3); Alcoholics (a) 98 male alcoholics who constituted the original alcoholic sample (A-1) and (b) 79 male alcoholics who constituted the cross-validation group (A-2); Clinical groups (a) 33 psychoneurotics (C-1), (b) 24 moderate psychoneurotics (C-2), (c) 22 psychotic patients (C-3), and (d) 710 psychiatric males (C-4).

It must be recognized that these groups are not random samples representing defined populations. Any conclusions which are drawn on the basis of this research must, therefore, await further research with larger and more representative groups before being accepted without qualification.

The MMPI was selected as the diagnostic test because of its general use in the various settings mentioned above and because of its known validity.

Phase one consisted of the analysis of the mean scores of the two alcoholic groups on the MMPI scales. These groups were then combined and compared with three groups (N-1, C-2, and C-3).

The second phase consisted of the analysis of the pattern of the composite alcoholic group and two other groups (N-2 and C-4).

The final phase dealt with the item analysis of the MMPI in an attempt to devise an alcoholic scale. The percentage of plus responses of the alcoholic (A-1) group was compared with the percentage of plus responses of a normal group, (N-2). Those items significant at the.002 level of confidence and showing a difference of at least 15 per cent were included in the scale. This scale of 68 items was then applied to the A-2 group for cross validation

purposes.

An attempt to discover the dynamics of the alcoholic's personality was undertaken by an analysis of the significant items on the alcoholic scale. An analysis of mean scores and profile patterns was also used to gain insight into the alcoholic's personality.

Within the limits of the samples available, the following conclusions seem to be warranted:

1. The mean scores of alcoholics are more similar to normal than to disturbed groups.

2. The neurotic can be differentiated from the alcoholic on the basis of the elevation of scores on the neurotic triad of the MMPI, the former group scoring higher.

3. The psychotic group can be differentiated from the alcoholic group in terms of the general elevation of the MMPI scores, the psychotic group scoring higher.

4. A comparison of the patterns exhibited by the alcoholic and those exhibited by the psychiatric and normal groups shows a significant difference. The alcoholics are significantly different from both groups with respect to the types of patterns they obtain on the MMPI.

5. The percentage of alcoholics exhibiting scores 70 is significantly different from the psychiatric group, but no difference was indicated between the alcoholic group and the normal group.

6. One of the primary characteristics of the normal group pattern is a lack of elevated T score above 54. If any scale is

elevated in the normal group, it is most likely to be the Ma scale. Since the primary characteristic of the alcoholic is an elevated Pd scale, followed by an elevation in the neurotic triad, differentiation can be made on this basis.

7. The psychiatric group can be differentiated from the alcoholic group by the number of patterns emphasizing neurotic tendencies.

8. The scale developed to differentiate the alcoholic from the normal accomplishes its purpose with a high degree of consistency.

9. The scale will not differentiate, with any consistency, between the alcoholic and disturbed groups.

10. The personality of the alcoholic appears to be one which emphasizes basic feelings of inferiority, insecurity, and lack of self confidence, which he attempts to compensate for by appearing to be extrovertive in nature.

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BIBLIOGRAPHY

1. Bacon, Seldon D. "Alcoholism in Industry." Industrial Medicine, May 1948, 17 (5):161-167.

2. _____. "The Mobilization of Community Resources for the Attack on Alcoholism." Quarterly Journal of Studies on Alcohol, December 1947, 8 (3): 473-497.

3. Brown, Mary A. "Alcoholic Profiles on the Minnesota Multiphasic." Journal of Clinical Psychology, July 1950 (3) 266-269.

4. Dixon, Wilfrid J., and Frank Massey Jr. Introduction to Statistical Analysis. New York: McGraw-Hill Book Company, 1951.

5. Goodstein, Leonard D. "Regional Differences in MMPI Responses Among Male College Students." Journal of Consulting Psychology, 1954, 18 (6):437-441.

6. Gough, H. G. "Diagnostic Patterns on the MMPI." Journal of Clinical Psychology, 1946, 2:23-27.

7. _____. "The F-K Dissimulation Index for the MMPI." Journal of Consulting Psychology, 1950, 14:408-413.

8. Haggard, A. W. "The Physician and the Alcoholic." Quarterly Journal of Studies on Alcohol, September 1945, 6:213-221.

9. Hampton, Peter Jan. "The Development of a Personality Questionnaire for Drinkers." Genetic Psychology Monographs, August 1953, 48:55-115.

10. Harris, R. E., and V. M. Ives. "A Study of the Personality of Alcoholics." American Psychologist, October 1947, 2 (10):405.

11. Hathaway, S. R., and J. C. McKinley. Manual for the MMPI. New York: The Psychological Corporation, 1945.

12. _____. The Minnesota Multiphasic Personality Inventory. (rev. ed.) Minneapolis: University of Minnesota Press, 1943.

13. Hathaway, S. R., and P. E. Meehl. An Atlas for the Clinical Use of the MMPI. Minneapolis: University of Minnesota Press, 1951.

14. Henderson, Ralph, and Selden Bacon. "Problem Drinking: The Yale Plan for Business and Industry." Quarterly Journal of Studies on Alcohol, June 1953, 14 (2):247-262.

15. Hewitt, C. C. "A Personality Study of Alcohol Addiction." Quarterly Journal of Studies on Alcohol, 1948, 9:368-386.

16. Jellinek, E. M., and Mark Keller. "Rates of Alcoholism in the United States of America 1940-1948." Quarterly Journal of Studies on Alcohol, March 1952, 13 (1):49-59.

17. Klebanoff, Seymore. "Personality Factors in Alcoholism as Indicated by the Thematic Apperception Test." Journal of Consulting Psychology, May-June, 1947, 9 (3):111-119.

18. Mann, Marty. "Alcoholism, America's Public Health Problem No. 4." House of Representatives, Columbia, South Carolina, March 1946.

19. Manson, Morse P. "A Psychometric Differentiation of Alcoholics from Nonalcoholics." Quarterly Journal of Studies on Alcohol, September 1948, 9 (2):175-208.

20. _____. "Psychopathic Characteristics of Alcoholics." Journal of Consulting Psychology, April 1949, 13 (2): 111-118.

21. Meehl, P. E. "The Dynamics of 'Structural' Personality Tests." Journal of Clinical Psychology, 1945, (1):296-303.

22. O'Brien, Cyril C. "Alcoholism Among Disciplinary Cases in Industry, A Preliminary Study." Quarterly Journal Studies on Alcohol, September 1949, 10 (2):263-278.

23. Page, Robert, and Edward Halkins. "Finding the Problem Drinker." Case Studies in an Industrial Health Problem. Quarterly Journal of Studies on Alcohol, December 1953, 14 (4):586-595.

24. Page, Robert, John J. Thorpe, and D. W. Caldwell. "The Problem Drinker in Industry." Quarterly Journal of Studies on Alcohol, September 1952, 13 (3):370-396.

25. Percentages or "Plus" and "Cannot Say" Responses of Norm Groups to the Minnesota Multiphasic Personality Inventory. Mimeographed paper, University of Minnesota, Minneapolis, Minnesota, 1953.

26. Seliger, Robert V. "Are You an Alcoholic?" Alcohol Hygiene, November-December 1946, 2:5-10.

27. Walker, Helen M., and Joseph Lev. Statistical Inference. New York: Henry Holt and Company, 1953.

28. Zubin, S. "Nomographs for Determining the Significance of the Difference Between the Frequencies of Events in Two Contrasted Series or Groups." Journal of American Statistical Association, 1939, 34:539-544.

PREDICTION OF CHRONIC ALCOHOLISM FROM THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

by

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This research had two major objectives. The first objective was the differential diagnosis of chronic alcoholism on the basis of the MMPI; the second was to describe the personality dynamics of the alcoholic insofar as they are revealed by the diagnostic indices.

The subjects used for the various phases of this research were as follows: Normals (a) 50 on-the-farm-trainees, (N-1), (b) 258 normal Minnesota males, (N-2), and (c) 139 normal Minnesota males and 54 VA hospitalized males (N-3); Alcoholics (a) 98 male alcoholics who constituted the original alcoholic sample, (A-1), and (b) 79 male alcoholics which constituted the cross-validation group, (A-2); Clinical (a) 33 psychoneurotics, (C-1), (b) 24 moderate psychoneurotics, (C-2), (c) 22 psychotic patients, (C-3), and (d) 710 psychiatric males, (C-4).

Since these groups are recognized as being not truly representative of any defined populations, further research must be completed before the conclusions can be generalized.

The MMPI was selected as the psychometric instrument because of its wide use and known validity.

Phase one consisted of an analysis of the mean scores of two alcoholic groups on the MMPI scales. These groups were then combined and compared with three other groups, N-1, C-2, and C-3.

Phase two involved the analysis of the patterns of the composite alcoholic group and two other groups, N-2 and C-4.

An item analysis of the MMPI items constituted the third phase of the research. The percentage of plus responses in the alcoholic group, A-1, were compared with the percentage of plus responses in a

normal group, N-3. Differences significant at the .002 level of confidence were included in an alcoholic scale if the difference was at least 15 per cent. A total of 68 items met these criteria.

The final phase was an attempt to describe the personality dynamics of the chronic alcoholic. This description was attempted by two methods. The first was a subjective analysis of the items included in the alcoholic scale; the second method was a description in terms of elevated scales and patterns exhibited by the alcoholics.

Within the limits of the samples available, the following conclusions seem to be warranted:

1. The mean scores of alcoholics are more similar to normal group than to disturbed groups.

2. The neurotic can be differentiated from the alcoholic on the basis of elevation in scores on the neurotic triad of the MMPI, the former scoring higher.

3. The psychotic group can be differentiated from the alcoholic group in terms of the general elevation of MMPI scores, the psychotic group scoring higher.

4. One of the primary characteristics of the normal group pattern is a lack of elevation in the "T" score above 54. If any scale is elevated, it is most likely to be the Ma scale.

5. The psychiatric group can be differentiated from the alcoholic group by the number of patterns emphasizing neurotic tendencies.

6. The scale developed to differentiate the alcoholic from

the normal accomplishes its purpose with about 80 per cent accuracy.

7. The scale will not differentiate with any consistency, between the alcoholic and psychoneurotics.

The personality of the alcoholic appears to be one which emphasizes basic feelings of inferiority, insecurity, and lack of self confidence. The alcoholic seems to attempt to compensate for these feelings by appearing to be extrovertive in nature.